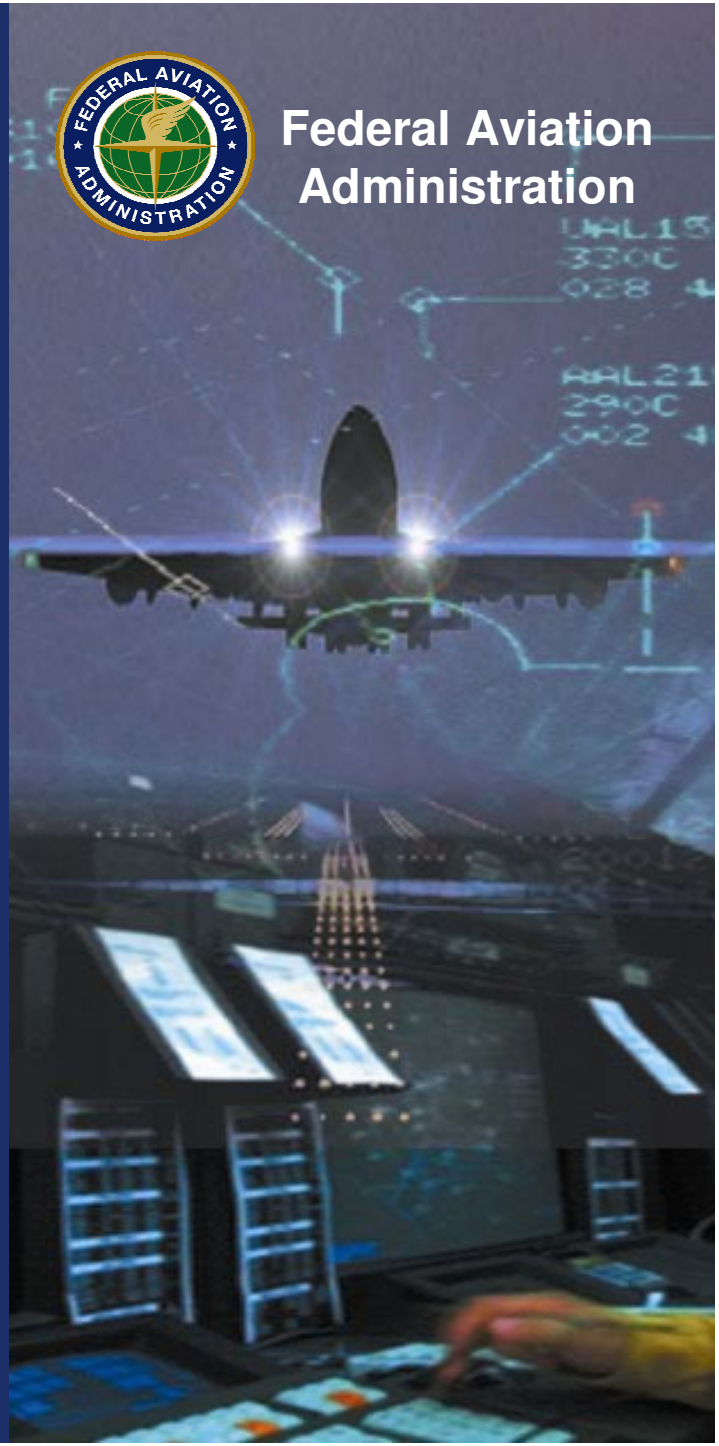
NextGen Solution Set:

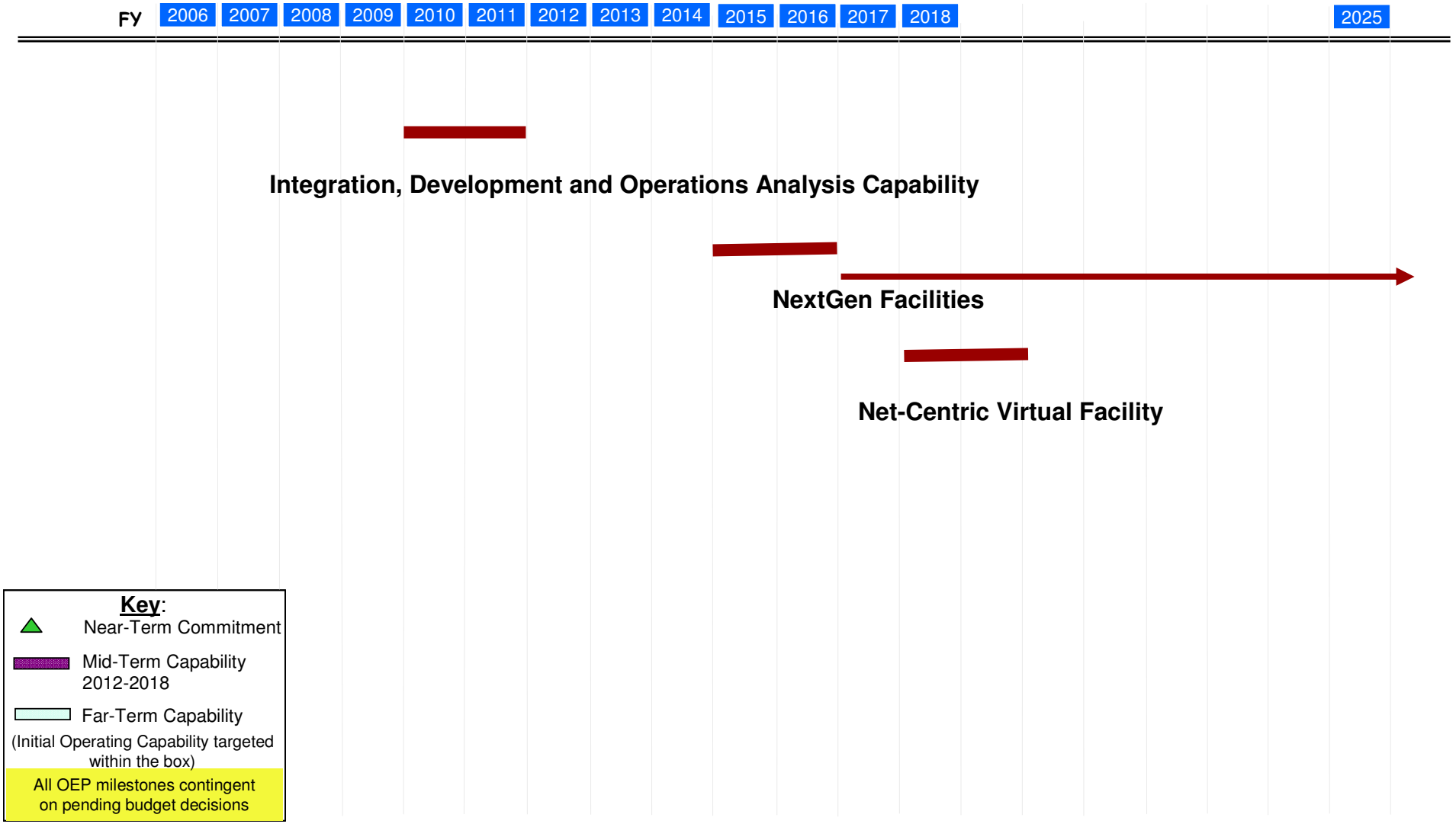
Facilities (FAC)

Transform Facilities

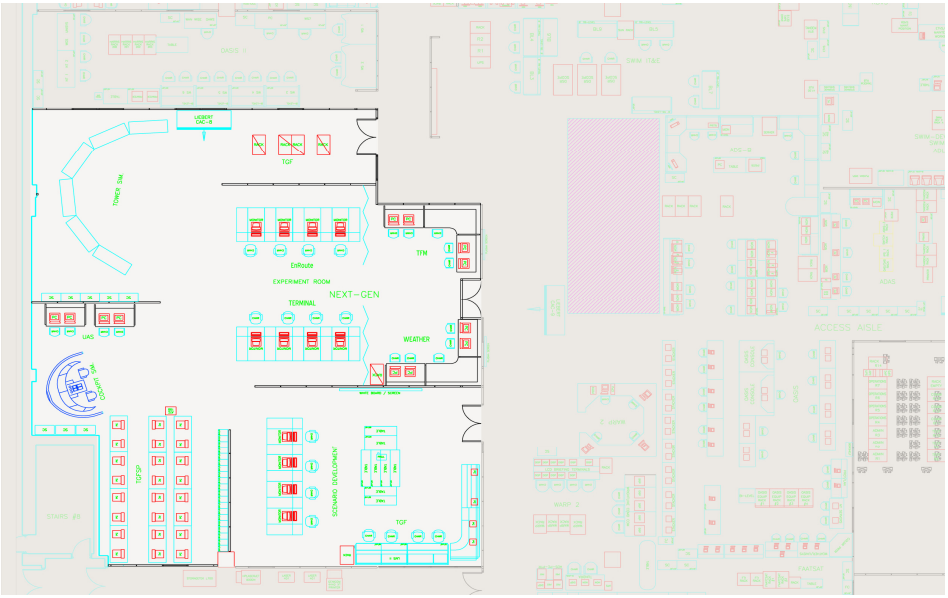


July 2008

Transform Facilities



Transform Facilities
Integration, Development and Operations Analysis



Description of Project

- NextGen introduces evolutionary and revolutionary concepts of operation and technologies
- Extensive work is required in the areas of concept development, early evaluations, and demonstrations
- Project provides a dedicated real-time, flexible, component/object-oriented capability and integrated environment at the William J. Hughes Technical Center – NICE Lab (NextGen Integration and Concept Evaluation Lab)

Supports the Following Capabilities

- All NextGen solution sets

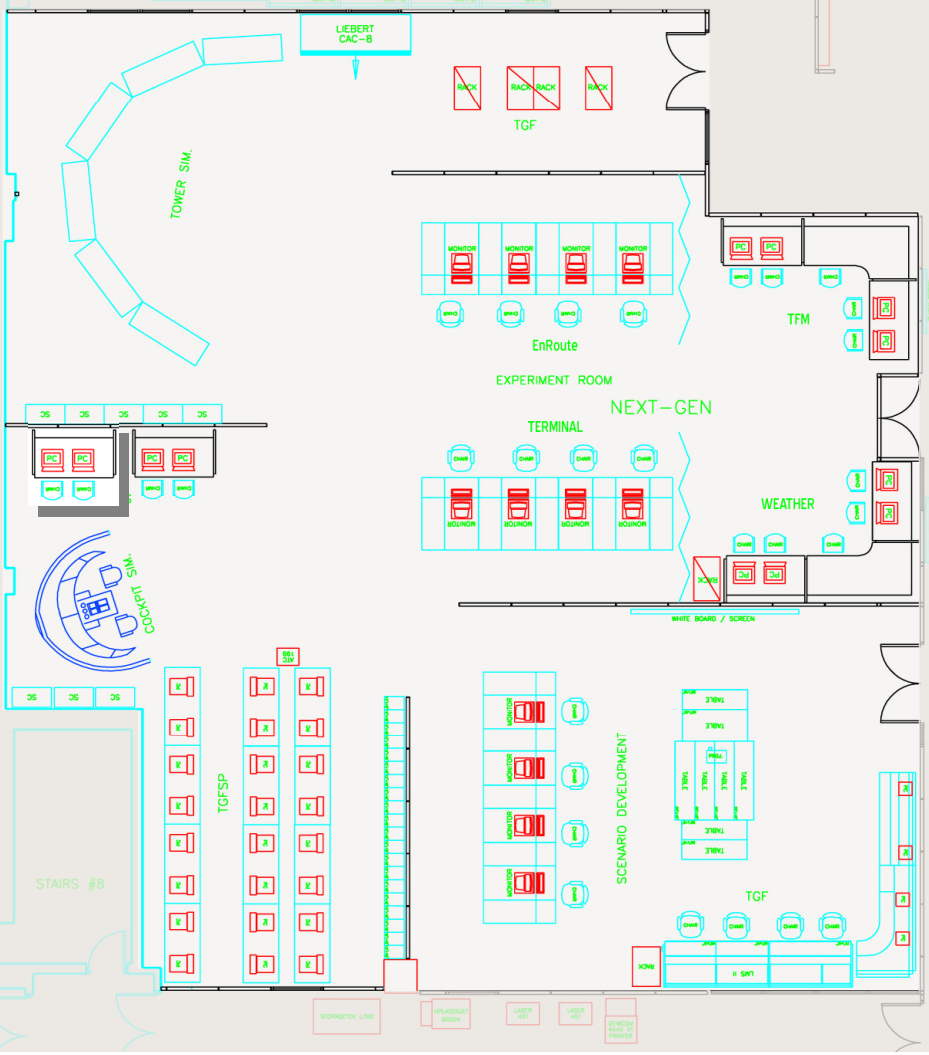
FY 2010 Milestones

- Procure and develop required software and hardware to establish and mature an integrated NextGen environment
- Conduct low-fidelity exercises

Benefits

- Provides for quick turnaround results and a more responsive capability for development and validation of NextGen research requirements
- Facilitates transition of the broad scope of technologies that support NextGen evolution unencumbered by the fidelity of the NAS infrastructure

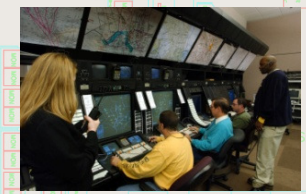
NICE Laboratory



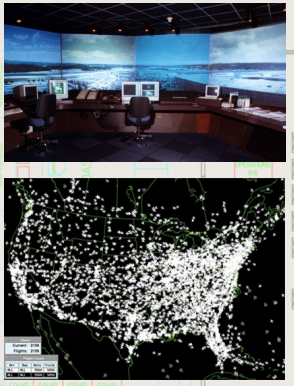
Manned Aircraft Sim Pilots

UAS Simulator

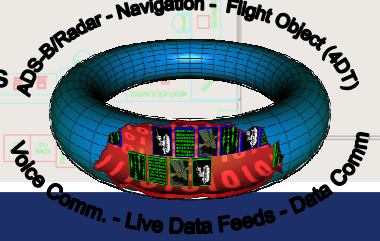
ATM
EnRoute, Terminal, and Tower Simulators



Traffic Flow Management



C/N/S Interfaces



Transform Facilities
Future Facilities Investment Planning

Description of Project

- Air traffic system was built around 1960's radar technology and is constrained by its limitations and results in operational inefficiencies
- Geo-dependent model dictated how many facilities were needed and their location
- Project considers infrastructure alternatives that
  - Provide a geo-independent service delivery model to optimize air navigation services
  - Ensure continuity of service
  - Implement NextGen operational changes
  - Improve infrastructure and workforce security
  - Provide best deployment, management, and training of workforce
  - Use more cost-effective and flexible systems for information sharing and back up

Supports the Following Capability

- All NextGen solution sets

FY 2010 Milestones

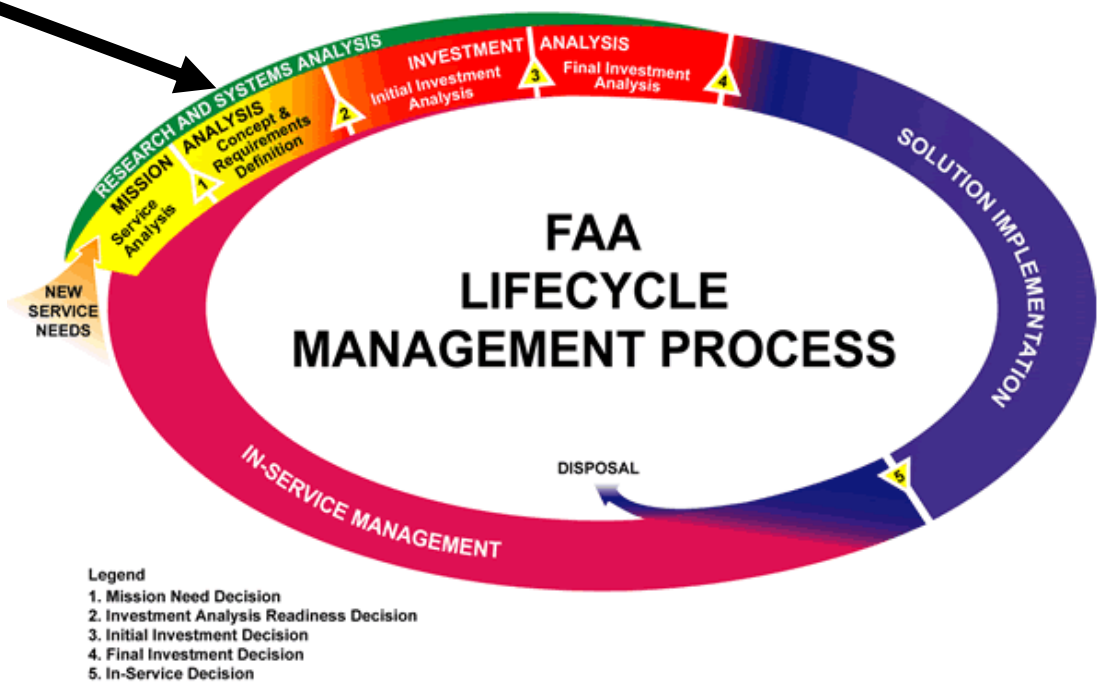
- Initial investment decision

Benefits

- Provides an environment that supports NextGen operational changes
- Provides seamless information exchange which increases flexibility and air navigation service provider agility to respond to demand
- Improves work environment and increases opportunity for career progression
- Provides facilities that meet Homeland security guidelines
- Reduces overall air navigation service provider costs without reducing level of service

NextGen Facilities Project Status

We are here



NextGen Facilities – Portfolio plans

- Measuring System Resilience
  - NEXTOR UC Berkeley
- Validating Space Requirements
  - Control Room Layout – virtual prototyping
- Business Continuity Requirements
  - Impacts for System Architecture
  - Training and staffing
- Service Transition
  - Risk mitigation
  - Logistics

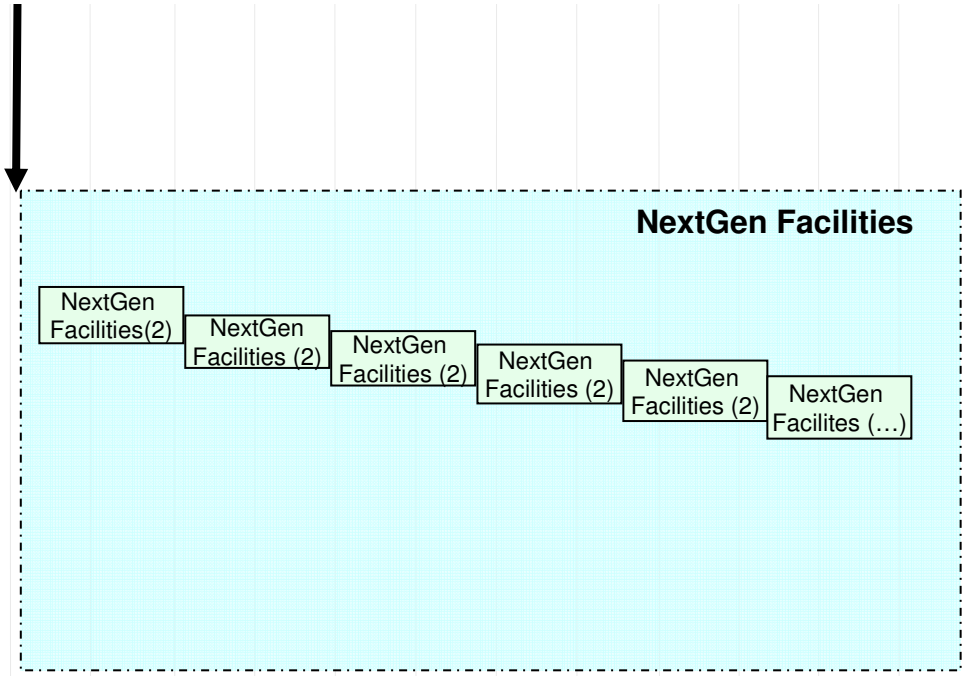
Transform Facilities

FY 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2025

Networked Facilities

Future Facilities Investment Planning –

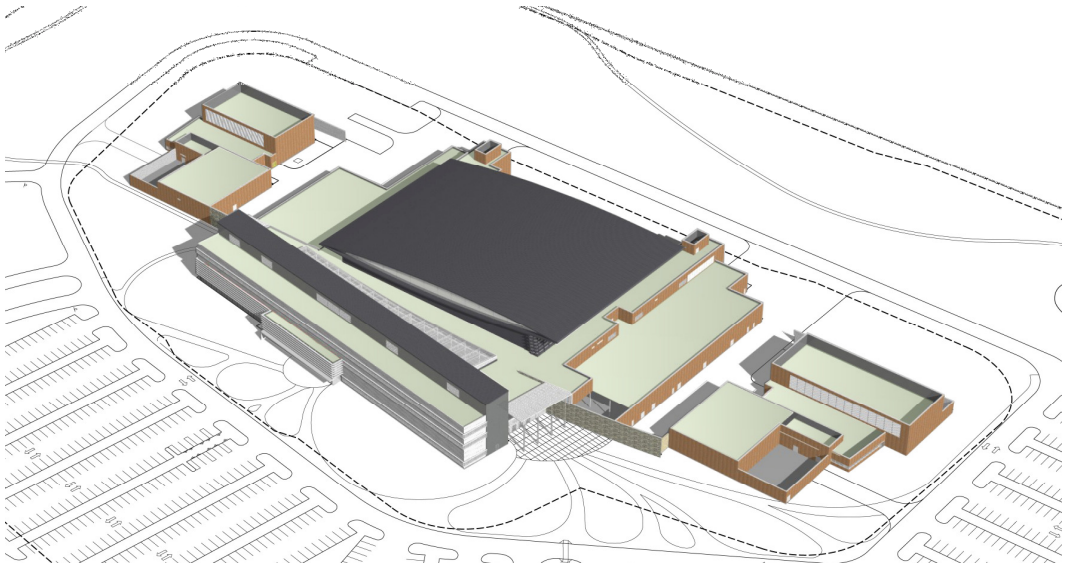
Develop requirements and conduct benefits and cost analysis of NextGen facilities – operational needs, business continuity needs, staffing needs. Prototype operational capabilites.



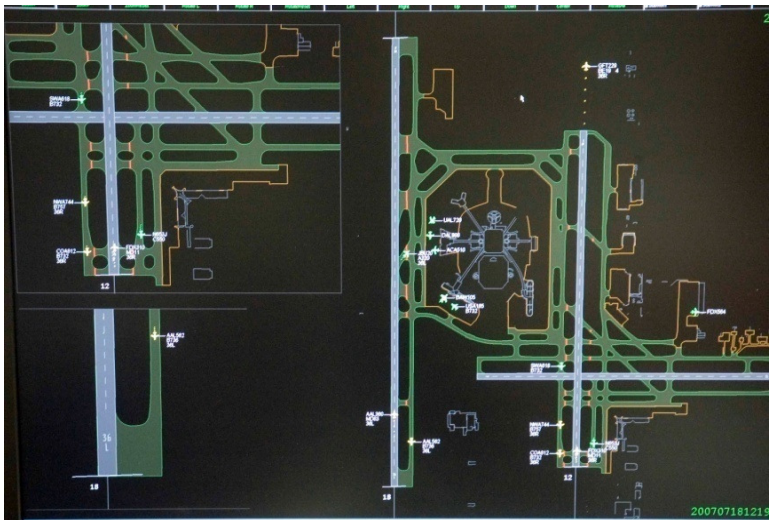
GSDP 50% Design Summary

Program of Requirements Summary

- 350,000 sq ft Main Building
    - 50,000 sq ft Operations Floor
    - 10,000 sq ft Operations Support
    - 50,000 sq ft Equipment Room
    - 53,000 sq ft Shared Support
    - 27,000 Administration Wing
- 100,000 sq ft Power Services Buildings
- 25,000 sq ft Support Building (RIF)
- 2,000 sq ft Guardhouses (2)



Transform Facilities
Virtual Tower



Integrated Display – Ground Control Position

Description of Project

- NextGen towers provides surface and tower services without the requirement for direct visual observation by ANSP personnel from an airport tower cab
- Project assesses the operational feasibility of the virtual tower concept by establishing a roadmap of research and engineering activities to
  - Develop and evaluate alternative NextGen tower concepts
  - Generate preliminary program requirements
  - Obtain technical data for costing information

Supports the Following Capability

- All NextGen solution sets

FY 2010 Milestones

- Concept requirements and definition
- Conduct field demonstration in FY09 and FY10 to validate concept and develop preliminary program requirements

Benefits

- Improves service during inclement weather and at night
- Expands services to a significantly larger number of airports
- Extends air traffic management tower services when towers close
- Increases IFR throughput
- Provides runway incursion awareness and prevention and ability to see new runways obstructed from view of the tower cab
- Provides flexible staffing through collocation
- Reduces infrastructure operating and maintenance costs and tower construction

Transform Facilities

FY 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2025

Networked Facilities

Cross-facility safety critical net-centric capability

•Develop concept--of-use for safety critical net-centric capabilities to provide reliable NextGen operations “virtually”, develop information performance requirements, develop prototype for performance revalidation, develop implementation requirements.